

Remarks

The Applicants have amended Claim 12 to recite a diamine unit containing a 1,9-nonanediamine and/or 2-methy-1,8-octanediamine unit and to recite that layer (b) comprises no added free diamine. Further, Claim 12 has been amended to recite that the layer (b) comprising the semi-aromatic polyamide (B) is disposed between the layer (a) comprising (A) polyamide 11 and/or polyamide 12 and said layer (c) comprising (C) a fluorine-containing polymer. Support may be found in Claims 14-16, which have been cancelled.

Claim 22 has been amended in a similar manner except that it further includes that the layer (d) comprising the terminal modified polyamide (D) is disposed between the layer (b) comprising the semi-aromatic polyamide (B) and the layer (c) comprising the fluorine-containing polymer (C). Support may be found in Claims 24-26 which have been cancelled. Entry into the official file and consideration on the merits is respectfully requested.

The Applicants have added new Claims 32-35. Support for Claims 32-35 may be found in paragraph [0082] of the Applicants' specification. Entry into the official file and consideration on the merits respectfully requested.

Claims 12-14, 16-17 and 21 stand rejected over Claims 2, 5 and 10 of Nishi on the grounds of nonstatutory obviousness-type double patenting. The Applicants note with appreciation the Examiner's helpful comments hypothetically applying Claims 2, 5 and 10 of Nishi against those claims. The Applicants note that the rejection is moot with respect to cancelled Claims 14 and 16. The Applicants nonetheless respectfully submit that the rejection is inapplicable to Claims 12-13, 17 and 21. Reasons are set forth below.

The rejection states that since Claim 10 of Nishi discloses a three layer structure comprising polyamide/adhesive polyamide/adhesive ETFE and a four layer structure comprising polyamide/adhesive polyamide//adhesive polyamide/adhesive ETFE and Claim 2 teaches the functional group on ETFE.

Nonetheless, Nishi does not disclose a layer (b) made of a specific semi-aromatic polyamide (hereinafter referred to as "PA9T/N") as recited in Claims 12-13, 17 and 21. The layer (b) of PA9T/N has a superior alcohol-gasoline permeation-preventing property relative to other polyamides (see the Applicants' examples) and a profitability or cost performance (see page 20, lines 12-16 of the Applicants' specification), which is a characteristic feature of the subject matter of Claims 12-13, 17 and 21.

Nishi also does not disclose or suggest a multilayer tube comprising three layers (a), (b) and (c) or four layers (a), (b), (d) and (c) as claimed. Thus, the rejection of Claims 12-13, 17 and 21 as not patentable on the ground of nonstatutory obviousness-type double patenting over Nishi is in error. Withdrawal of the rejection is respectfully requested.

Claims 15 and 18 stand rejected under 35 USC §112 as being indefinite. The Applicants have cancelled both of Claims 15 and 18, thereby rendering the rejection moot. Withdrawal of the rejection is respectfully requested.

Claims 12-14, 16-17 and 21 stand rejected under 35 USC §102 as being anticipated by Nishi. The Applicants again note that Claims 14 and 16 have been cancelled, thereby rendering that portion of the rejection moot. The Applicants nonetheless respectfully submit that Nishi is inapplicable. Quite simply, since Nishi does not disclose a layer (b) made of PA9T/N as recited in Claims 12-13, 17 and 21, those claims are not anticipated by Nishi. Withdrawal of the rejection is respectfully requested.

Claims 12-15, 17-18, 20-24, 27-28 and 30-31 stand rejected under 35 USC §103 over the hypothetical combination of Shimizu with Stoeppelmann. The Applicants respectfully submit that the rejection is moot with respect to cancelled Claims 14-15 and 24. The Applicants also respectfully submit that the rejection is inapplicable to the remaining claims in this rejection. Reasons are set forth below.

Stoeppelmann is different from Claims 12 and 22 in that (1) the intermediate layer, which the rejection alleges corresponds to the Applicants' layer (b), is not a semi-aromatic polyamide containing a terephthalic acid and/or naphthalenedicarboxylic acid unit and a 1,9-nonanediamine and/or 2-methy-1,8-octanediamine unit (PA9T/N), (2) the intermediate layer contains at least one added diamine or free diamine (see Claim 1), which is not contained in the rejected claims, and (3) the fluoropolymer does not have introduced into the molecular chain thereof a functional group having reactivity with a polyamide-based resin.

The rejection states that Stoeppelmann teaches PA6T. However, Stoeppelmann does not teach PA9T/N, which is specifically claimed. PA9T/N has a superior alcohol gasoline permeation-preventing property compared to other polyamides (see the Applicants' examples) and the profitability or cost performance (see page 20, lines 12-16 of the Applicants' specification). Stoeppelmann does not disclose a PA9T/N layer.

Further, Stoeppelmann requires at least one added diamine in the adhesion promoter composition of the intermediate layer to make it adhesive. While it is a characteristic feature of Stoeppelmann, the Applicants' claims do not require added diamine or free diamine in the intermediate layer.

The fluoropolymer of Stoeppelmann does not have introduced into the molecular chain thereof a functional group having reactivity with a polyamide-based resin. However, the Applicants' fluoropolymer has introduced into the molecular chain thereof a functional group having reactivity with a polyamide-based resin. This improves the adhesion between the intermediate layer of polyamide and the inner layer of the fluoropolymer. The fluoropolymers used in Stoeppelmann are based on TFE, HFP, VDF and PMVE which do not have a functional group having reactivity with a polyamide-based resin. Thus, Stoeppelmann is quite different from the Applicants' Claim 1.

Further, Claim 22 requires a multilayer comprising layers (a), (b), (d) and (c) in that order. Stoeppelmann does not disclose such a multilayer structure.

Shimizu discloses a composition comprising a blend of (a) a fluorine-containing polymer having a functional group which is capable of developing an affinity with resins and (b) a heat resistant thermoplastic polyester resin.

However, one skilled in the art would not be motivated to combine Stoeppelmann with Shimizu. Since Stoeppelmann uses adhesive PA, there is no motivation to replace the fluoropolymer of Stoeppelmann with the fluorine-containing polymer having a functional group of Shimizu. Further, there is no reason why the intermediate layer of PA with added diamine of Stoeppelmann would be replaced by polyamide comprising no added free diamine.

Oka discloses a specific semi-aromatic polyamide (hereinafter referred as "PA9T") and that PA9T has excellent crystallinity, heat resistance, low water absorption property, chemical resistance and lightweightness as well as excellent dimensional stability, surface appearance and shock resistance (column 2, lines 32-39). However, one skilled in the art would not be motivated to combine Stoeppelmann with Shimizu and Oka. There is no reason why the intermediate layer of PA with added diamine of Stoeppelmann would be replaced by PA9T of Oka, even if the disclosure of Oka is considered.

Thus, there is no reason to combine Stoeppelmann with Shimizu and Oka. One skilled in the art would not only make the combination as hypothetically set forth in the rejection, but the rejection would still result in a different product. Withdrawal of the rejection is respectfully requested.

Claims 16 and 26 stand rejected under 35 USC §103 over the further hypothetical combination of Oka with Shimizu and Stoeppelmann. The Applicants respectfully submit that the rejection is now moot in view of the cancellation of both of those claims.

Claims 19 and 29 stand rejected under 35 USC §103 over the further hypothetical combination of Krause with Shimizu and Stoeppelmann. The Applicants respectfully submit that Krause fails to cure the deficiencies set forth above with respect to the combination of Shimizu and Stoeppelmann. Thus, even if one skilled in the art were to employ Krause, the result would still be different from what the Applicants claim in Claims 19 and 29. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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